

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Scheme of Teaching and Examination

B.E. V SEMESTER MECHANICAL ENGINEERING

S. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Exam			Total Marks	Credit L+(T+P)/2
				L	T	P	Theory/ Practical				
							ESE	CT	TA		
1	Mech. Engg.	337511 (37)	Machine Design - I	4	1	-	80	20	20	120	5
2	Mech. Engg.	337512 (37)	Internal Combustion Engines	4	1	-	80	20	20	120	5
3	Mech. Engg.	337513 (37)	Dynamics of Machines	4	1	-	80	20	20	120	5
4	Mech. Engg.	337514 (37)	Fluid Machinery	4	1	-	80	20	20	120	5
5	Mech. Engg.	337515 (37)	Manufacturing Science - II	4	1	-	80	20	20	120	5
6	Mech. Engg.	337516 (37)	Industrial Management	3	1	-	80	20	20	120	4
7	Mech. Engg.	337521 (37)	Machine Design - I Lab	-	-	2	40	-	20	60	1
8	Mech. Engg.	337522 (37)	Internal Combustion Engines Lab	-	-	2	40	-	20	60	1
9	Mech. Engg.	337523 (37)	Dynamics of Machines Lab	-	-	2	40	-	20	60	1
10	Mech. Engg.	337524 (37)	Fluid Machinery Lab	-	-	2	40	-	20	60	1
11	Humanities	300525 (46)	Personality Development	-	-	2	-	-	20	20	1
12	Mech. Engg.	337526 (37)	* Practical Training Evaluation/ Library	-	-	1	-	-	20	20	1
			Total	23	6	11	640	120	240	1000	35

**L – Lecture, T – Tutorial,
P – Practical,
TA – Teacher’s Assessment**

**CT- Class Test,
ESE- End Semester Exam ,**

*To be completed after IV Sem. and before the commencement of V Sem.

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Semester: V th

Subject: Machine Design - I

Total Theory Periods: 50

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

Branch: Mechanical Engg.

Code: 337511 (37)

Total Tutorial Periods: 12

Note: 1) Design data book by PSG and ISI data sheets are allowed in the examination.

2) The duration of the paper is 4 (four) hours.

UNIT – I

General Considerations

Selection of Materials, Design Stress, Factor of Safety, Stress concentration factor in tension, bending and torsion, theories of failures.

Notch sensitivity, design stress for variable and repeated loads, fatigue stress concentration factor, endurance diagrams.

Chain Drives

Chain drives, roller chains, geometric relationships, dimensions of chain components polygonal effect, power rating of roller chains.

UNIT – II

Basic Elements Design

Types of key and design, design of socket-spigot cotter joint, sleeve and cotter joint, gib and Cotter joint, design of Knuckle joint, design of splines.

UNIT- III

Threaded fasteners:

Geometry of thread forms, terminology of screw threads and thread standards, specifications of steel bolts, initial tension, relation between bolt tension and torque, design of statically loaded tension joints, design of bolted joints due to eccentric loading.

Power Screws

Power screws, Force analysis-square and trapezoidal threads, Collar friction, Stresses in screw, coefficient of friction, efficiency of thread.

UNIT – IV

Riveted Joints

Types of rivet heads, types of riveted joints, failure of riveted joint, strength of rivet joint, efficiency of riveted joint, design of riveted joint for boiler.

Welded joint

Types of welded joints, stresses in butt and fillet welds, strength of welded joints, location and dimension of weld design, eccentrically loaded joint, welded joint subjected to bending moment, design procedure, fillet welds under varying loads, stress relieving techniques.

UNIT – V

Shaft and Axles

Transmission shaft, Design against static load, Design for strength, rigidity and stiffness, design under continuous loading for fatigue.

Couplings

Types of couplings, design of flange and flexible couplings, compression coupling, muff coupling.

TEXT BOOKS

1. Design of Machine Elements from V.B. Bhandari, TMH Publications.
2. Machine Design by Shigley – McGraw Hill Pub.

REFERENCE BOOKS

1. Machine Design - Movnin – MIR Publishers
2. Machine Design - Sharma & Agrawal - Katson publications
3. Principles of Mechanical Design - R. Phelan – McGraw Hill Pub.
4. Machine Design - Suderraj Murthy – Khanna Publishers
5. Machine Design, theory & Practice – J. Michels Walter, E. Wilson Charles - Add MacMilan Publishers, New York.
6. Machine Design – Kulkarni – TMH
7. Machine Design – M. F. Spott – PHI

Semester: Vth

Subject: Internal Combustion Engines

Branch: Mechanical Engg.

Code: 337512 (37)

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Total Theory Periods: 50

Total Tutorial Periods: 12

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

UNIT - I

Introduction

Introduction of Internal and external combustion engine and their comparison, four stroke cycle S.I. and C.I. engine, two stroke engine, comparison of four stroke and two stroke engines, comparison of S.I. and C.I. engine, classification of I.C. Engine, Valve timing diagram for S.I. and C.I. engines, effect of valve timing and engine speed on volumetric efficiency, reasons for ignition and injection advance, dual fuel, multi-fuel and Wankel Rotary engine.

Cycles

Reasons for deviation of actual cycle from air standard cycles, variation specific heats and cycle analysis, fuel air cycles and their analysis, actual cycles and their analysis.

Purpose and Thermodynamic cycle of supercharging.

UNIT-II

Fuels

Basic requirement of I.C. Engine fuels, requirement of an ideal gasoline, structure of petroleum, effect of fuel structure on combustion, volatility of liquid fuels, effect of volatility on engine performance for starting, vapour lock, acceleration, percolation, carburetor icing, and crank case dilution.

Combustion

Determination of stoichiometric air fuel ratio, fuel-air and exhaust gas analysis for a given combustion process.

Combustion in S.I. and C.I. engines, Detonation,

Pre-ignition, Knocking, Antiknock rating of fuels

Octane number, critical compression ratio, HUCR, performance number, Cetane number. Dopes

UNIT-III

Carburetor

Properties of air-petrol mixtures, mixture requirement, simple carburetor, limitation of simple carburetor, modern carburetor, Main metering system, Idling system, Economizer system, acceleration pump and cold starting system.

Nozzle lip, venturi depression, calculation of fuel jet and venturi throat dia for given air fuel ratio.

Petrol Injection system, electronic fuel injection, advantage and disadvantage of petrol injection.

UNIT - IV

Ignition System

Battery and magneto ignition system and their comparative study, spark plug heat range, electronic ignition system, firing order, Ignition timing, centrifugal and vacuum ignition advance.

Injection System

Requirement, type, fuel pump, type of fuel injector, type of nozzle, atomization, spray penetration and spray direction, multiple point fuel injection system.

Cooling System

Cooling requirement, air cooling, liquid cooling, type of liquid cooling system, advantage and disadvantage of air cooling and water cooling system, Antifreeze mixture.

Lubrication System

Function of lubricating system, properties of lubricating oil, wet sump, dry sump and mist lubrication system.

Governing of I C Engine

Necessity of governing, various methods of governing.

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

-:2:-

UNIT – V

Testing and Performance

Performance parameters, measurements of brake power, indicated power, friction power, fuel and air consumption, exhaust gas calorimeter, calculation of various performance parameter, heat balance sheet.

Performance current for S.I. and C.I. Engine with load and speed.

Emission and Pollution

SI Engine and CI Engine emissions and its control and comparison. Effect of pollution on Human health and bio sphere.

TEXT BOOKS

1. A Course in Internal Combustion Engines – M.L. Mathur & R.P. Sharma – Dhanpat Rai & Sons
2. Internal Combustion Engine – V. Ganeshan – TMH

REFERENCES BOOKS

1. A Course in Internal Combustion Engine – V.M. Domkundwar – Dhanpat Rai & Sons
2. Internal Combustion Engine – R. Yadav – Central Publishing House, Allahabad
3. Fundamental of Internal Combustion Engine – Paul W. Gill, James H. Smith, Eugene J. Ziurys – Oxford and IBH Publishing Company
4. Internal Combustion Engines – R.K.Rajput – Laxmi Publications

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Semester: V

Subject: Dynamics of Machines

Total Theory Periods: 50

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

Branch: Mechanical Engg.

Code: 337513 (37)

Total Tutorial Periods: 12

UNIT-I

Governors:

Characteristics of centrifugal governors, gravity controlled governors such as Porter, and Proell. Spring controlled centrifugal governors such as Hartung, and Hartnell governor, performance parameters: sensitivity, stability, isochronism and hunting, governor effort and power

UNIT - II

Balancing:

Balancing of rotating masses, static and dynamic balancing, determination of balancing masses in two plane balancing, balancing of internal combustion engines, balancing of in-line engines, firing order, balancing of V-twin and radial engines, forward and reverse crank method, balancing of rotors.

UNIT-III

Gyroscope:

Gyroscopic forces and couple, gyroscopic stabilization of airplanes, ship motion and vehicles moving on curved path.

UNIT-IV

Mechanical Vibrations:

One dimensional longitudinal, transverse, and torsional vibrations, natural frequency, effect of damping on vibrations, types of damping, different types of damping. Forced vibration, forces and displacement, transmissibility, vibration isolation, vibration sensors: seismometer and accelerometers
Whirling of shafts with single rotor.

UNIT-V

Inertia force analysis

Effective force and inertia force of a link, Inertia forces in the reciprocating engine, Inertia forces in four bar chain.

Turning moment diagram and flywheel

Turning moment diagram for single and multi cylinder internal combustion engine, coefficient fluctuation of speed, coefficient of fluctuation of energy, flywheel

TEXT BOOKS

1. Theory of Machine- S.S.Rattan - TMH.
2. Theory of Machine – Jagdish Lal – S.K. Kataria & Sons
3. Theory of Machines – J. E. Shigley – McGraw Hill

REFERENCE BOOKS

1. Theory of Mechanisms and Machines- A. Ghosh, A. K. Mallik – EWP Press
2. The Theory of Machines - Thomas Bevan, - CBS Publishers
3. Mechanisms and Machine Theory - J. S. Rao, R. V. Dukupati - Wiley Eastern Limited

Semester: B.E. V Sem.

Branch: Mechanical Engg.

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Subject: Fluid Machinery

Total Theory Periods: 50

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

Code: 337514 (37)

Total Tutorial Periods: 12

UNIT – I

Boundary Layer Theory

Boundary layer definition and characteristics, momentum equation, Laminar and turbulent boundary Layer, Total drag, separation and control.

Flow around submerge bodies

Force exerted by flowing fluid on a body: Drag and lift; stream lined and bluff body, Drag on sphere and cylinder, circulation and lift on circular cylinder, lift of an air foil.

UNIT – II

Impact of Free Jets

Impulse momentum principle, force exerted by the jet on stationary flat and curved plate, hinged plate, moving plate and moving curve vanes, jet propulsion of ship.

Impulse Turbine

Classification of turbine, impulse turbine, Pelton wheel, Construction working, work done, head efficiency and Design aspects, Governing of impulse turbine.

UNIT – III

Reaction Turbine

Radial flow reaction turbine, Francis turbine: construction, working, workdone, efficiency, design aspect, advantages & disadvantages over pelton wheel.

Axial flow reaction turbine

Propeller and Kaplan turbine, bulb or tubular turbine, draft tube, specific speed, unit quantities, cavitation, degree of reaction, performance characteristics, surge tanks, governing of reaction turbine.

UNIT-IV

Centrifugal Pumps

Classification of Pumps, Centrifugal pump, Construction, working, workdone, heads, efficiencies, multistage centrifugal pump, pump in series and parallel, specific speed, characteristic, net positive suction head, cavitation.

UNIT – V

Reciprocating Pumps

Classification, component and working, single acting and double acting, discharge, workdone and power required, coefficient of discharge, indicator diagram, air vessels.

Fluid system

Hydraulic accumulator, Hydraulic intensifier, Hydraulic Press, hydraulic crane, hydraulic lift, hydraulic Ram, hydraulic coupling, hydraulic torque converter, air lift pump, jet pump.

TEXT BOOKS

1. Hydraulic Machines - Jagdish Lal – S.K. Kataria & Sons
2. Mechanics of Fluid – Massey B.S. – English Language Book Society (U.K.)

REFERENCE BOOKS

1. A text of Fluid Mechanics – R. K. Rajput – S. Chand & Company Ltd.
2. Fluid Mechanics and Fluid Power Engineering – D.S. Kumar– Kataria & Sons
3. Hydraulics and Fluid Mechanics – Modi P.N, Seth S.M. – Standard Book House
4. Introduction to Fluid Mechanics and Fluid Machines – S.K. Som & G. Biswas - TMH

Semester: V

Branch: Mechanical Engg.

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Subject: Manufacturing Science - II

Code: 337515 (37)

Total Theory Periods: 50

Total Tutorial Periods: 12

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

UNIT – I

Forging

Principle, types, tools and fixture of forging, forging dies, forging machines, forging design, drop forging die design, upset forging die design, forging practice and process capability, forging defects, Inspection and testing of forged parts.

Extrusion

Principle, extrusion processes, process parameters, extrusion equipment, extrusion defects.

UNIT – II

Rolling

Principle, classification of rolled products, types of rolling, rolling mill train components, roll pass design for continuous mill.

Drawing

Wire drawing, tube drawing: Principle, setup, type, process capability.

UNIT – III

Press Working

Types of presses, selection of press, components of a simple press, press working operations – shear, bending, drawing etc., types of dies, die sets, considerations in die design, scrap strip layout.

Jigs & Fixtures

Degree of freedom, principles of location and clamping, locating, clamping and indexing devices, principles of design, design of simple jigs and fixtures.

UNIT – IV

Grinding

Processes, machines, design consideration for grinding, specification of grinding wheel, process parameters, economics of grinding.

Gear Cutting

Principle of gear generations, principle motion and kinematic arrangement of gear shaping and gear hobbing machines, gear cutting on milling machines.

UNIT – V

Unconventional Machining

Advantages, application and limitation, survey of Non-conventional machining processes, mechanics of metal removal, tooling, equipment, process parameters and surface finish obtained & specific application of following processes - EDM, ECM, USM, AJM, EBM and LBM.

Flow Turning

Principles, production of conical, cylindrical and parabolic shapes, spinability test, forces in power spinning, numerical problems.

Thread Rolling

Principle, advantages and disadvantages, types of thread rolling, numerical problems.

TEXT BOOKS

1. Manufacturing Technology (Vol. - I & II) – P.N. Rao – Tata McGraw Hill Pub. Company, New Delhi
2. A Text Book of Production Technology(Manufacturing Processes) – P.C. Sharma – S. Chand and Company Ltd., New Delhi

REFERENCE BOOKS

1. Manufacturing Engineering and Technology – S. Kalpakjian & S.R. Schmid – Addison Wesley Longman, New Delhi
2. Tool Engineering & Design – G.R. Nagpal – Khanna Publishers – New Delhi
3. A Text Book of Production Technology – O.P. Khanna – Dhanpat Rai & Sons, New Delhi
4. Manufacturing Science – A. Ghosh & A.K. Mallik – East West Press Pvt. Ltd., New Delhi
5. Production Technology – R.K. Jain – Khanna Publishers, New Delhi

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Subject: Industrial Management

Code: 337516 (37)

Total Theory Periods: 40

Total Tutorial Periods: 12

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

UNIT – I

Basic Concepts and Functions of Management Planning

Nature, Purpose and Objectives of Planning, Organizing, Authority and Responsibility, Staffing, Supply of Human Resources, Performance Appraisal, social responsibility of manager, social responsibility and social responsiveness, ethics and management.

UNIT – II

Human Resource Management

Nature and Scope of Human Resource Planning, Training and Development, Recruitment and Selection, Career Growth, Grievances, Motivation and its types, Need for Motivation, Reward and Punishment, Need, wants, satisfaction chain. Maslow hierarchy of needs. Quality of working life, job enrichment and job enlargement.

UNIT – III

Marketing Management

Marketing Environment: Consumer Markets and Buyer Behaviour, Marketing Mix, Advertising and Sales Promotion, Channels of Distribution.

Financial Management

Book keeping, financial statement Analysis, Financial Ratios, Capital Budgeting, Break-Even Analysis.

UNIT - IV

Management Information System

Role of information in decision making, Definition of MIS, computer based user machine system, integrated system, MIS v/s Data processing, subsystem of an MIS, MIS DSS and expert system. Evolution and effectiveness of Information system.

UNIT – V

Flexibility in Management

Definition, connotation of flexibility, systematic concept of flexibility, foundation of flexible system management, types of flexibility and its applications in management of modern organizations.

Strategic and Technology Management

Need, Nature, Scope and Strategy, Corporate strategy, strategic planning, objectives, goal, policies, mission and vision, SWOT analysis, need and characteristics of Technology Management.

TEXT BOOKS

1. Essential of Management: H. Koontz and h. Weihrich
2. Marketing Management - Kotler Philip- Prentice Hall of India
3. MIS conceptual foundation, structure and development, G B Davis & M H Olson.
4. Flexibility in Management, Sushil, Vikas publication, New Delhi

REFERENCE BOOKS

1. Human Resource Management - Luthans Fred - McGraw Hill, Inc.
2. Organizational Behavior Concepts, Controversies Applications - Stephen, P. Robbins- Prentice Hall, Englewood Cliffs, New Jersey
3. Financial Management – M.Y. Khan and P.K. Jain - Tata Mc-Graw Hill
4. Competitive Advantage - Porter Michael - The Free Press
5. Competitive Strategy - Porter Michael - The Free Press, 1985
6. Fundamentals of Business Organizations and Management – Y.K. Bhusan – S. Chand and Sons
7. Industrial Management – K.K. Ahuja - Khanna Publishers

Semester: **B.E. V Sem.**

Branch: **Mechanical Engg.**

Subject: **Machine Design - I Lab**

Code: **337521 (37)**

Total Practical Periods: **28**

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Total Marks in End Semester Exam: **40**

EXPERIMENTS TO BE PERFORMED

Each student shall submit two-assembly design report along with the drawing for assembly/sub assembly for any mechanical system consisting of not less than four machine elements included in the syllabus.

Semester: V th
Subject: Internal Combustion Engines Lab
Total Practical Periods: 28
Total Marks in End Semester Exam: 40

Branch: Mechanical Engg.
Code: 337522 (37)

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

LIST OF EXPERIMENTS TO BE PERFORMED (MINIMUM SIX EXPERIMENTS AND FOUR STUDIES)

1. Study of IC Engine models
2. Study of working of four stroke petrol engine and four stroke diesel engine with the help of cut section models.
3. Study of working of two stroke petrol and two stroke diesel engine with the help of cut section models.
4. Study of fuel supply system of a petrol engine (fuel pump and simple carburettor)
5. Study of complete carburettor (Solex carburettor)
6. Study of Petrol Injection System.
7. Study of fuel supply system of a Diesel engine (fuel pump and fuel injector)
8. Study of Ignition systems of an IC Engine (Battery and Magneto ignition system) and Electronic ignition system.
9. Study of Lubrication system of an IC Engine (mist, splash and pressure lubrication)
10. Study of cooling systems of an IC Engine (air cooling and water cooling)
11. To conduct a performance test on diesel engine to draw heat balance sheet for given load and speed
12. To determine friction power of diesel engine by Willan's line or fuel rate extrapolation method.
13. To conduct a performance test on the variable compression ratio engine and to draw the heat balance sheet for given compression ratio, speed and load and plot the performance curves.
14. To conduct a performance test on a four cylinder four stroke petrol engine and to draw the heat balance sheet and performance curves.
15. To calculate the indicated power, friction power and mechanical efficiency of four stroke four cylinder petrol engine at full load and rated speed by Morse test.
16. To draw the valve timing diagram of a Four stroke S.I. or C.I. Engine using experimental setup.
17. Analysis of engine exhaust gases using Orsat apparatus / gas analyzer.

LIST OF EQUIPMENTS/MACHINES REQUIRED

1. Model Of Two & Four Stroke Petrol Engine
2. Model Of Two & Four Stroke Diesel Engine
3. Scooter Engine In Cut Section
4. Four Stroke, Four-Cylinder Petrol Engine In Cut Section
5. Carburettors In Cut Section / without cut section.
6. Model of Petrol Injection System
7. Bosch Fuel Pump In Cut Section
8. Nozzles In Cut Section
9. Diesel Injectors In Cut Section
10. Four Stroke Single-Cylinder Diesel Engine Test Rig
11. Variable Compression Ratio Engine Test Rig
12. Four Stroke Multi-Cylinder Petrol Engine Test Rig
13. Experimental setup for drawing valve timing diagram of Four stroke S.I. or C.I. engines.
14. Orsat apparatus / gas analyzer for engine exhaust gas analysis.

Semester: B.E. V Sem.
Subject: Dynamics of Machines lab
Total Practical Periods: 28
Total Marks in End Semester Exam: 40

Branch: Mechanical Engg.
Code: 337523 (37)

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

EXPERIMENTS TO BE PERFORMED (MINIMUM TEN EXPERIMENTS)

1. To find out the oscillations of simple pendulum with universal vibration apparatus.
2. To find out the oscillations of Compound pendulum with universal vibration apparatus.
3. To find out the radius of gyration of bi-filler suspension with universal vibration apparatus.
4. To find out undamped torsional vibrations of single rotor system with universal vibration apparatus..
5. To find out the frequency of damped torsional vibration of single rotor system with universal vibration vibration apparatus.
6. To measure the frequency of torsional vibrations of single rotor system with universal vibration apparatus.
7. To measure the frequency of torsional vibrations of double rotor system with universal vibration apparatus.
8. To find out free vibration of helical coiled spring with universal vibration apparatus.
9. To study forced damped vibration of a spring mass system and simple supported beam with universal vibration apparatus.
10. To find out the Gyroscopic couple and prove the Gyroscopic law with Gyroscope apparatus.
11. To find out the Power and effort of Proel, Porter & Hartnell Governor with Governor Apparatus.
12. To find out the critical speed for different diameters of shaft by whirling of shaft apparatus.
13. To verify the static and dynamic balancing for different planes and masses by balancing apparatus.

LIST OF EQUIPMENTS/MACHINES REQUIRED

1. Universal Vibration Apparatus
2. Whirling Of Shaft Apparatus.
3. Balancing Apparatus (Both Static & Dynamic)
4. Epicyclic Gear Train And Holding Torque Apparatus
5. Gyroscope apparatus
6. Governor apparatus with differential attachments

Semester: B.E. V Sem.
Subject: Fluid Machinery Lab
Total Practical Periods: 28
Total Marks in End Semester Exam: 40

Branch: Mechanical Engg.
Code: 337524 (37)

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

EXPERIMENTS TO BE PERFORMED (MINIMUM SEVEN EXPERIMENTS AND THREE STUDIES)

1. Performance characteristics of Pelton wheel turbine.
2. Performance characteristics of Francis turbine.
3. Performance characteristics of Kaplan turbine.
4. Performance characteristics of variable speed centrifugal pump.
5. Performance characteristics of rated speed centrifugal pump.
6. Performance characteristics of multistage centrifugal pump.
7. Study of Wind Tunnel (Open Circuit blower type)
8. Determination of Lift and drag force over an air foil.
9. To study the working of fluidic devices (Analog and Digital)
10. To study the Hydraulic Accumulator
11. To study the Hydraulic Intensifier
12. To study the Hydraulic Crane
13. To study the Hydraulic lift
14. To study the Hydraulic Ram
15. To study the Jet Pump
16. To study the Air Lift Pump
17. To determine the coefficient of discharge of a Venturi-flume.

LIST OF EQUIPMENTS/MACHINES REQUIRED

1. Pelton Wheel Turbine
2. Francis Turbine Test Rig
3. Kaplan Turbine Test Rig
4. Variable Speed Centrifugal Pump Test Rig
5. Rated Speed Centrifugal Pump Test Rig
6. Multi Stage Centrifugal Pump Test Rig
7. Reciprocating Pump Test Rig
8. Complete setup of Wind Tunnel (Open circuit blow type) with minimum wind speed not less than 30m/sec.
9. Fluidic devices (Analog and Digital)
10. Airofoil with the provision of measurement of pressure distribution over the surface.
11. Cut section model of Hydraulic Accumulator
12. Cut section model of Hydraulic Intensifier
13. Cut section model of Hydraulic Crane
14. Cut section model of Hydraulic Lift
15. Cut section model of Hydraulic Ram
16. Cut section model of HydraulicJet and Air lift pump.
17. Tilting Flame

Semester : B.E. V

Subject : Personality Development

No. of Periods : 2 pds/week

Total Marks in End Semester Exam. : NIL

Minimum number of class tests to be conducted: Two

Branch : Common to All Branches

Code : 300525 (46)

Tutorial Periods : NIL

Teacher's Assessment: 20 Mks

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

Objective : The course is introduced to develop one's outer and inner personality tremendously and enrich the abilities to enable one to meet the challenges associated with different job levels. Personality Development is essential for overall development of an individual apart from gaining technical knowledge in the subject.

Unit – I

Personality concepts :

- What is Personality – **its physical and psychic aspects. How to develop a positive self-image. How to aim at Excellence. How to apply the cosmic laws that govern life and personality.**
- How to improve Memory. **How to develop successful learning skills. How to develop and effectively use one's creative power.**
- **How to apply the individual MOTIVATORS that make you a self-power personality.**

Unit – II

Interpersonal Skills:

- **Leadership:** Leaders who make a difference, Leadership: your idea, What do we know about leadership? If you are serious about Excellence. Concepts of leadership, Two important keys to effective leadership, Principles of leadership, Factors of leadership, Attributes.
- **Listening:** Listening skills, How to listen, Saying a lot- just by listening, The words and the music, How to talk to a disturbed person, Listening and sometimes challenging.
- **How to win friends** and influence people, How to get along with others. How to develop art of convincing others. How can one make the difference. How to deal with others particularly elders. Conflicts and cooperation.

Unit – III

Attitudinal Changes:

- **Meaning of attitude**, benefits of positive attitudes, how to develop the habit of positive thinking.
- **Negative attitude and wining:** What is FEAR and how to win it. How to win loneliness. How to win over FAILURE. How to win over PAIN. How to win over one's ANGER and others anger. How to overcome CRITICISM. What is stress and how to cope up with it? What is crisis and how to manage it.
- How to apply the **character MOTIVATORS** that elevate you and your personality to the top, the art of self motivation.
- How to acquire **mental well-being.**
- How to acquire **physical well-being.**
- How to formulate effective **success philosophy.**

Unit –IV

Decision Making:

How to make your own LUCK. How to plan goals/objectives and action plan to achieve them. How to make RIGHT DECISION and overcome problems. How to make a Decision. Decision making : A question of style. Which style, when ? People decisions : The key decisions. What do we know about group decision making ? General aids towards improving group decision making. More tips for decisions of importance.

Unit – V

Communication Skills:

- **Public Speaking:** Importance of Public speaking for professionals. The art of Speaking - Forget the fear of presentation, Symptoms of stage fear, Main reason for speech failure, Stop failures by acquiring Information; Preparation & designing of speech, Skills to impress in public speaking & Conversation, Use of presentation aids & media.

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C G)

- **Study & Examination:** How to tackle examination, How to develop successful study skills.
- **Group discussions:** Purpose of GD, What factors contribute to group worthiness, Roles to be played in GD.

Reference Books:

1. How to develop a pleasing personality by Atul John Rego, Better yourself books, Mumbai, 2000.
2. How to Succeed by Brain Adams, Better Yourself books, Mumbai, 1969.
3. Basic Managerial skills for all by E. H McGrawth, Prentice Hall India Pvt Ltd, 2006.
4. The powerful Personality by Dr Ujjawal Patni & Dr Pratap Deshmukh, Medident Publisher, 2006.
5. Great Words win Hearts by Dr Ujjwal Patni, Fusion Books, 2006.
6. Personality : Classic Theories & Modern Research; friedman ; Pearson Education 2006.
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